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sented. The young pod, according to Watson's description, is "stipitate glabrate, linear, acuminate, compressed, the sutures thick and nerve-like," a set of characters that might be applied to almost any *Cassia*. The two detached pods on a sheet in the Department of Agriculture Herbarium, collected by Wheeler in Nevada, apparently do not belong to the genus at all, but as Mr. Coville has remarked, seem to be those of *Acacia Greggii*.

Until this odd species can be more carefully examined, it has been thought best not to include it in the regular sequence. While belonging to the subgenus *Senna*, it is not referable to any of Bentham's sections.

Steps toward a Revision of the lino­sporous Species of North American graminicolous Hypocreaceæ.

BY GEO. F. ATKINSON.

Certain of the lino­sporous species of Hypocreaceæ present such a similarity in the character of the asci and spores that some uncertainty seems to exist regarding the generic relationship. This has led to the incorporation of some species under the same genus without regard to certain well-defined and important differential characters of the stroma. In the study of several species collected in Alabama my attention has been called to these peculiarities, and this step toward a revision of the species is offered here as a contribution upon the subject.

The genus *Epichloë* Fr. is here restricted to those characters of the stroma of which *E. typhina* is the type.

The genus *Hypocrella* was erected by Saccardo to include species with quite a variety of stroma but which in contradistinction from *Epichloë* was disciform, and did not surround the host, or substratum, as *E. typhina* does. The new genus *Dothichloë* is here proposed for those species of *Hypocrella* which possess a dothidiaceous stroma and are represented by forms like *Epichloë Hypoxylon* Pk.

Hypocrea tuberiformis B. & Rav. with linear spores is made the type of another genus, for which the name *Echinodothis* is proposed.

The characters of these two new genera may be given as follows:

DOTHICHLÖE Atkinson.

Stroma dothidiaceous, black, hard, especially the outer portions, lighter within, but the dark color is present to a considerable depth, of like structure throughout though varying in color, pulvinate, effused, disciform or armillæ-form, partly or entirely surrounding the host or substratum, continuous or interrupted. Perithecia, or ascigerous cells, crowded, confluent with the stroma, immersed, the apex projecting above and giving it a granulose, rugose, or convolute appearance. Asci cylindrical, 8-spored. Spores filiform, septate, eventually separating at the septa into short segments. DOTHICHLÖE HYPOXYLON (Pk.).

Epichloë Hypoxylon Pk. 27th Rep. N. Y. State Mus., 108.

Hypocrella Hypoxylon Sacc. Syll. 11: 581.

Stroma 5–20 mm. long, usually occupying one side of the leaf and may be either epiphyllous or hypophyllous, sometimes entirely surrounding the host. Perithecia 100–150 μ . in diameter and nearly twice as long, the conical apices projecting slightly above the stroma give it a granulose appearance. Asci 150–200 $\times$ 4–5 μ . linear, tapering to a slender point at the base and crowned by a hyaline truncate apex. Spores nearly the same length as the asci, but 1 μ in diameter, curved and interwoven in the ascus.

This species is very common in the United States upon grasses. *Hypocrea atramentosa* B. & C. Journ. Linn. Soc. 10: 377, is probably also a synonym of this species. What I have taken to be this plant I found very abundant on the under side of the leaves of *Andropogon Virginicus* in Alabama. It agrees well with authentic specimens of Peck's species. Ellis also includes in the synonymy of this species *Dothidea vorax*, *atramentaria* and *pilulæformis* B. & C. *D. atramentaria* B. & C. in Ellis' N. A. F., No. 683, from South Carolina is certainly the same. The others I have not seen.

Saccardo places *Dothidea vorax*, *pilulæformis* and *atramentaria* B. & C. in the genus *Ophiodothis* of the Dothideaceæ as *D. vorax* (B. & C.), Sacc. var. *pilulæformis* and var. *atramentaria*, the latter variety referring to No. 100, Rav. F. Amer. The specimen which I have seen of this number of Rav. F. Amer. is mostly immature, but sufficiently developed to identify it as the same species as *D. atramentaria* B. & C. in Ellis N. A. F. No. 683, and also identical

with the *Dothichloë Hypoxylon* (Pk.), as above described. Saccardo's genus *Ophiodothis* is characterized as possessing continuous spores. This together with the different character of the stroma of such species as *O. Haydeni* (B. & C.) distinguishes it from *Dothichloë*.

DOTHICHLÆ ARISTIDÆ n. sp. Stroma dimorphic, sterile portion confluent, forming a thin black layer, in the specimens seen entirely surrounding the culm. Fertile portion much thicker, confluent or interrupted, forming small perpendicular elevations on the sterile portion, projecting apices of the crowded perithecia more or less confluent in an irregular manner giving a rugulose or convolute appearance to the stroma. Otherwise as in *D. Hypoxylon*. On *Aristida purpurascens*, Auburn, Ala. Collected by B. M. Duggar.

The simple agreement in character of the asci and spores of these species cannot be taken as of specific identity where there are other characters sufficiently distinct, for there is no appreciable difference between the asci and spores of *Epichloë typhina* and those of *Dothichloë Hypoxylon*, and in several species of *Cordyceps* they are very similar.

Epichloë strangulans (Mont.) Sacc., which according to Saccardo is dothideaceous in color, may belong to this genus, but I have not seen the plant.

There may be some question as to the proper location of the genus *Dothichloë*, whether it should remain in the Hypocreaceæ or be transferred to the Dothideaceæ.

ECHINODOTHIS Atkinson.

Stroma subcarnose, of corky consistence, pulvinate, light colored, tuberculate and constricted at base, or disciform, or irregular, partly or sometimes entirely surrounding the host, or substratum, composed of several layers, or strata, of different consistence. Perithecia subcylindrical, sessile, giving an echinate appearance to the stroma. Asci cylindrical, 8-spored. Spores linear, septate, at length separating at the septa into short segments.

ECHINODOTHIS TUBERIFORMIS (B. & Rav.).

Hypocrea tuberiformis B. & Rav. Grev. 4: 13.

Hypocrella tuberiformis Atkinson, Bot. Gaz. 16: 282 (1891).

Stroma subglobose, simple or lobed, irregular, usually seated upon one side of the culm but occasionally entirely surrounding it, fastened to the substratum by whitish radiating threads. When

young conidiophorous, covered with needle-shaped basidia $35-40 \times 2-3 \mu$, bearing oval or broadly fusoid conidia, $3.5-4 \times 7-10 \mu$. When mature composed of three strata of different color, the inner whitish tinged with pink, intermediate layer light ochre, and outer layer cinnamon. The intermediate layer is less compact than the other two. Perithecia 1 mm. long by one-third millimeter in diameter, singly or in groups of 3-4 or 20, or crowded, sometimes branching below. Asci large, $450-750 \times 14 \mu$, tapering to a slender point at base, more gradually toward the somewhat enlarged, conoid, truncate apex. Spores pluriguttulate as well as pluriseptate, nearly as long as the ascus. On stems of *Arundinaria macrosperma* var. *suffruticosa*, Ala. and S. C.

Among the other material collected in Alabama is a gramini-colous fungus, which at the time of collection I took to be, from its external appearance, the same as *Dothichloë Hypoxylon*. Upon examination it proves to be very different, and is the type of a new genus for which the name *Myriogenospora* is here proposed. Although the spores are not strictly lino-sporous and the species belongs plainly to the Dothideaceæ, it seems well to characterize it here.

MYRIOGENOSPORA Atkinson.

Stroma pulvinate, effused, carbonaceous. Perithecia immersed, confluent with the stroma, crowded, apex not very prominent. Asci subcylindrical, many-spored. Spores slender, continuous, hyaline.

MYRIOGENOSPORA PASPALI n. sp.

Stroma one to two centimeters long, seated upon one side of the young culm in the cases observed, and partly enclosed on the sides by the equitant leaf blade. Perithecia large, $200-300 \mu$ in diameter, oval or obovate, projecting above the stroma but little by a small conical apex producing a slight unevenness of the surface. Asci large, $200-250 \times 15-20 \mu$, tapering each way to slender ends, more strongly so at the base, so that they appear oblanceolate in side view. Spores very numerous, several hundred, narrowly apiculate, $15-25 \times .5-.8 \mu$, fusoid, straight or slightly curved. On *Paspalum læve*. Auburn, Ala., collected by B. M. Duggar.

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